

SIXPENCE

FEBRUARY 1944

# AMATEUR RAD<sup>I</sup>O

THE  
OFFICIAL ORGAN  
OF THE  
WIRELESS INSTITUTE  
OF  
AUSTRALIA



Published by the Victorian Division

# AMATEUR-RADIO

INCORPORATING THE N.S.W. DIVISIONAL BULLETIN

Vol. 12 No. 2

February, 1944.

## AN INTRODUCTION TO SIGNAL TRACING.

.. Frank Cross VK2FX ..

### PART I

Calling all Hams! Your attention is drawn to a new field in Radio Servicing, namely Signal Tracing. This new method of tracking down trouble in receivers and in fact, any piece of equipment which uses Radio or Audio frequencies, is as far in advance of our usual methods of "hunting and hoping," as the multimeter is over shorting the H.T. to ground with a screwdriver and measuring the spark with a blacksmith's rule.

Signal tracing was introduced in America by that King of servicemen, John Rider, about 1939 and would have long ago claimed your attention but for the War. Rider's book on the subject, entitled "Servicing by Signal Tracing" is recommended to the gang for general consumption, as it not only explains this subject fully but also gives excellent information on what happens to the signal and all its tricks in travelling from the antenna to the speaker in every type of receiver and where the sigs hide out in control circuits. Every Ham that can read English can understand Rider, as he leaves nothing to the imagination. (I have NO shares in the Rider Publishing Company.)

Signal tracing is the act of listening to and measuring the frequency and intensity of the signal from the antenna post of the receiver, to the voice coil of the speaker. The instrument used for the purpose is a tuned vacuum-tube voltmeter in addition to an audio amplifier with some output indicator. Now don't get down under the table! The tuned VTVM is simply a TRF covering the frequencies desired and operating an electric eye, and the output indicator can also be an electric eye with a rectifier, parked across the plate circuit of the audio output tube. However more about the instrument later.

Let us have a look at an ordinary superhet (Fig. 1) and by following the signals through the various stages, we can get some idea of the advantages in having an instrument, to listen to, and measure the frequencies and strength of the signals.

We turn this receiver to a signal on the broadcast band, say 1000 K.C.'s. The 1000 K.C. signal will appear at the antenna post

with all the other signals on the band, as at this point there is no selectivity. At point 2 we expect an increase in signal voltage, due to the step-up ratio of the antenna to grid transformer, while at point 3 the signal is increased about 40 times due to the amplification of the tube. On the grid of the converter tube, point 4, another slight rise occurs because of the plate to grid transformer, and passing on to point 5 further amplification has bumped the signal up again. The gain of the converter is not as great as in the case of the R.F. tube as its plate circuit is tuned to 465 K.C. assuming that is the I.F. frequency used.

At the plate of the converter, three other signals appear in addition to the 1000 kc signal namely, the oscillator signal at 1465 kc, and the sum and the difference of the signal and oscillator frequencies. Of these four signals the oscillator signal is by far the strongest, the difference frequency follows (i.e. the 465 kc beat) then the signal frequency (1000 kc) and last in the strength scale comes the sum frequency (2465 kc.) because as the plate circuit is tuned to 465 kc the impedance presented to the sum frequency is low. Anyway, who cares? The 465 kc. beat is the one we want now so let us see what it is like at the grid of the I.F. amplifier, at point 6. Here the 465 kc signal should be the same strength as at point 5, as the transformer ratio is usually about 1 to 1, and at point 7, the signal increases about 30 times due to the amplification of the tube. A drop is expected at point 8 as the plate to diode transformer has a step down ratio to match the lower impedance of the diode.

Going on to point 8 we find a much reduced 465 kc. signal, owing to the effect of the condenser across the diode load resistor. At the same point we have the first appearance of the audio signal, thanks to the rectifying properties of the diode. (In better designed receivers, a filter is used to prevent the 465 kc. signal from getting into the audio amplifier, instead of relying on condenser "C" to do the job.) The signal at point 10 will be as loud as the signal at 9 or less according to the position of the moving arm of the potentiometer used as the diode load resistor. At point 11 we should find the same strength signal as at point 10, but at point 12 an increase is to be expected the amount depending upon the gain of the tube used, and the same amount of audio should appear at point 13. Some increase in signal voltage will be had at point 14 but as the output tube is a power amplifier it will not give as much lift to the signal voltage as a voltage amplifier. A decided drop in voltage will be apparent at point 15, because of the stepdown ratio of the speaker to voice coil transformer. The voltage step down can easily be ascertained if the impedance ratio is known, as the voltage ratio is equal to the square root of the impedance ratio.

Those of you who are still reading, will readily see the great advantage of having an instrument, to listen to and measure the frequencies and intensities of signals at the various points in the receiver when looking for faults. If a signal appears at any of the bypassed points in the circuit, it means that the condenser at that point is ineffective and is in need of replacement because it is either open circuited or not large enough for the job. On the other hand, if a signal does not appear where it should, at the correct

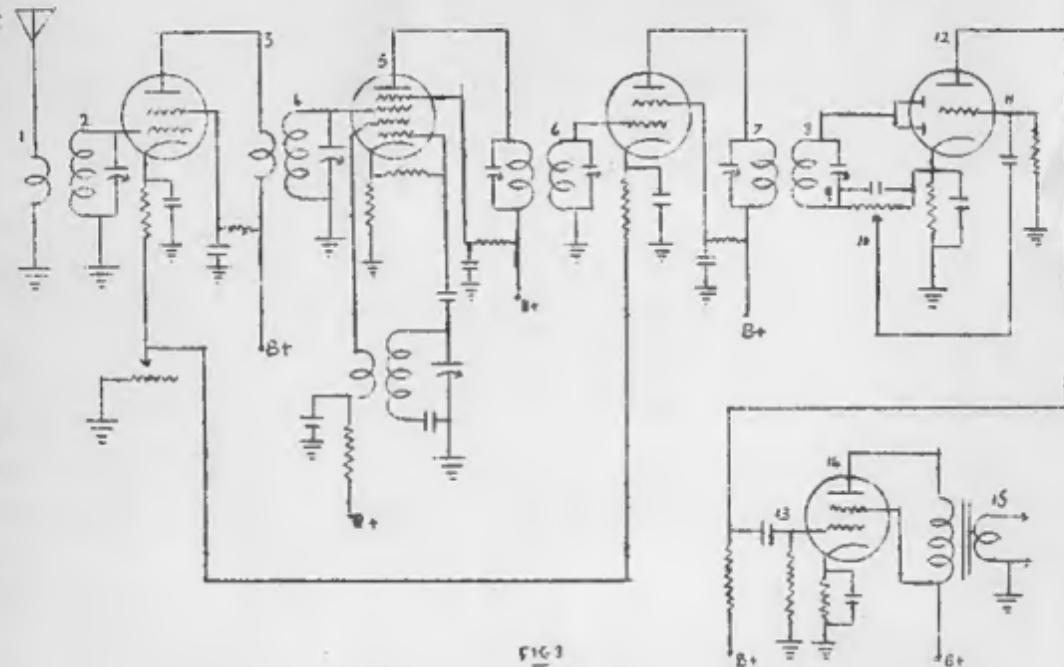


FIG. 3

strength and frequency, the point where the signal departs from normal can be attacked with the multimeter for shorts, or voltage, current and resistance upsets. Faults such as shorted turns in R.F. transformers, variations in oscillator frequency, resin cored joints, intermittent condensers or other component parts, oscillation, motorboating, noise or faulty alignment of zaged stages can more easily be traced with this than any other method. In fact it will track down anything but a "Pirate" using your call!

.....oo.....

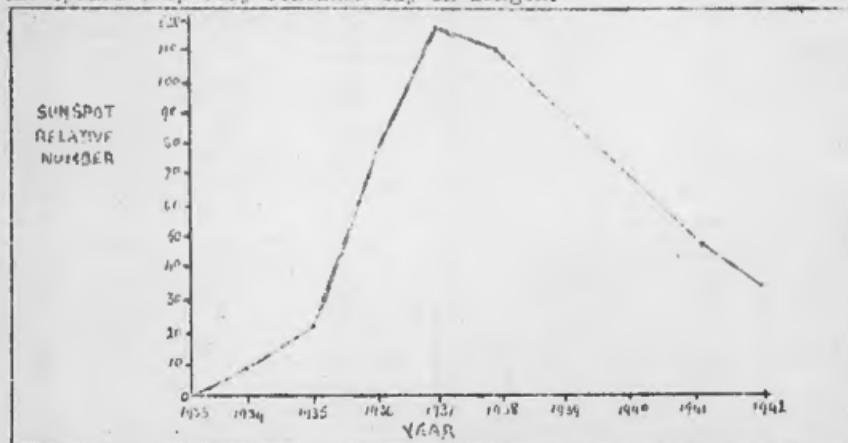
#### SUNSPOTS -

##### CLOSE OF THE PRESENT CYCLE

It has recently been announced that a sunspot group has been observed in the relatively high solar latitude of 32 degrees north. This may have been the first sunspot belonging to a new cycle of solar activity, and its appearance is therefore evidence that the end of the present cycle was predicted to be in 1944.

The cycles of solar activity are of significance in radio in that the amount of ionisation produced by the sun in the upper atmosphere varies in phase with them. Thus the critical frequency of the ionosphere layers is much higher at sunspot maximum than at the minimum, & consequently higher working frequencies must be used for short-wave transmission at the former period than at the latter.

The present solar cycle commenced in 1933 and its progress as seen in the graph in Fig 1 would seem to indicate that it would come to an end about 1944, but precision on this point is by no means easy, since the cycles vary very considerably in length.



Besides varying in size and the frequency of their appearance the sunspots also change their latitude as the cycle progresses. At the beginning of a cycle they occur on the solar surface in two belts

(Continued on Page 14.)

.. 34th ANNUAL REPORT ..

WIRELESS INSTITUTE OF AUSTRALIA

- New South Wales Division -

To be Presented at Annual General Meeting to be held at Y.M.C.A.,  
Thursday, 17th February 1944.

Gentlemen:-

In placing before you the 34th Annual Report of the Wireless Inst. of Australia, New South Wales Division, your Council are of the opinion that this Division of the Institute is the most active Experimental organisation in the world today. This happy state of affairs has been brought about by the wonderful enthusiasm shown by members and the splendid co-operation given to Council at all times.

Obviously the most important happenings during the year under review are the activities of the Emergency Communication Network. The Net was originally formed to work in conjunction with the State War Effort Co-ordination Committee, but unfortunately that particular organisation ceased to function as an A.R.P. body early in 1943. For quite a few weeks the future of the Network hung in the balance. It was felt by Executive Members of the Council that if the Net was disbanded, Experimental Radio in Australia would receive a great setback. Eventually through the efforts of Messrs. Priddle and Ryan, the Department of National Emergency Services became interested and that body asked for a Report on the possibilities of the Net as an efficient means of communication. This report was made by two independent Radio Experts. It was an adverse one. Quite frankly, it was deserved. One of the greatest difficulties that the Technical Committee had to overcome was the fact that quite a number of operators attached to the Network either would not or could not get away from the idea that they were still "hamming." A plea to withhold a decision was made to N.E.S. and was granted. In the meantime the whole position was placed before the operators and they decided to make an effort to bring the Net up to the degree of efficiency worthy of the W.I.A.

As a result the independent Committee were asked to again report on the Net and this time it was a favorable one, so much so that N.E.S. decided to make use of the Radio. In addition the sum of \$1000 was set aside to implement the Service. A Wireless Committee, under the Chairmanship of the State Operational Controller Colonel F. Lorenzo, D.S.O., comprising Messrs. Wetherill (R.I.'s. Dept.) Sergeant Reynor VK2LJ (Police Radio) Ryan & Priddle (W.I.A.), was set up, and at its first meeting W. G. Ryan VK2TI was appointed Deputy Controller, Wireless. This appointment meant that a Member of the Institute was in complete charge of the National Emergency Services Wireless Net. In addition Messrs. Fray VK2NP and F. P. Dickson VK2AFB were appointed Wireless Training Officer and Technical Officer, Wireless respectively. It should be mentioned at this stage that the Divisional Chairman R. A. Priddle VK2RA intimated that he was not in a position to accept any appointment.

The changeover from S.W.E.C.C. to N.E.S. meant that the whole Operating Procedure and Forms had to be changed, but operators were not discouraged and went to work with a will. On Sunday 12th December the Net participated in its first N.E.S. exercise, and came through with flying colors, so much so that the Director of N.E.S. has decided that much greater use will be made of Radio in the future. Originally intended to come into operation when other means of communication had failed it will now implement, and in some cases, eliminate some other methods.

In order to maintain interest and efficiency a Message Handling Contest was instituted and a Cup given for the best Station. VL2JI under the leadership of C. Fryar VK2NP, won the first trophy and a new Cup is now being competed for with VL2JL at present enjoying a small lead.

Reviewing the activities of the Network from a personal angle it is difficult to single out any particular individual or station for praise but before leaving Network activities I would be failing in my duty if I did not mention the fine amateur spirit shown by Vice President E. Hodgkins in providing a service from a location that was quite a long way from his place of abode. The operators at VL2JE are also desiring of praise for the manner they stuck to their task. Reception difficulties cropped up and at times it was difficult for this station to receive Control, but despite this difficulty VL2JE was always manned, even though this meant at times that the operators would have nothing to do for about two hours.

Federal Headquarters completed a two year period in this State during November and when the question of location was put before the various Divisions or State representatives, they were unanimous in asking New South Wales to again act as Headquarters Division for further period of two years. Nominations for the new Executive were called for and received and a ballot duly held which resulted as follows:-

Federal President.	F. P. Dickson VK2AFB (unopposed)
Federal Vice President	H. F. Peterson VK2HP
Federal Secretary	W. G. Kyan VK2TI (unopposed)
Executives	W. J. McElrea VK2UV C. Fryar VK2NP

Newcomers to the Executive are Messrs. Dickson and Fryar who replace Messrs. Priddle and Gough. It was unfortunate that the retiring Federal President did not seek re-election. In taking over the responsibilities of Headquarters Division in 1941, Council of that day took the step with no little trepidation in view of past history. In 1941 the Federal Executive as a body was comparatively unknown, but during its term of office under the able guidance of R. A. Priddle VK2RJ, it soon brought under the notice of Australian Experimenters the fact the Institute was still an active body, more than capable of looking after the interests of the Experimenter during wartime as it was during the days of peace. EMA can be

ill spared and it is hoped that at a later date his services will again be available. A mark of appreciation is also due to N. Gough VK2MG for his devotion to duty and the able manner in which he carried out his work as an Executive Officer.

During the year the well being of the Amateur on Service has not been overlooked. No less than £18/12/6 has been subscribed to the Wireless Institute of Wireless Prisoner's of War Fund. In addition to supporting this Fund the "Adopt a Soldier" scheme sponsored by the A.C.F. has been supported by the Division. £20/16/- has been collected to date - sufficient to keep eight Servicemen in comforts for twelve months.

The official organ "Amateur Radio" has been well supported during the year, and the amount of copy submitted to the publishers has been far in excess of that which could be published. Although the passing of the "Monthly Bulletin" left a gap in VK2, it is fully realised that the sacrifice was worth while, as the magazine can now be said to be worthy of the W.I.A. On a technical basis it compares more favorably with any other Experimental publication in the Amateur world today. A word of praise is due to the Magazine Committee, particularly Messrs. Marsland and Hogan for the splendid work they are doing. Let us hope that the day will soon dawn when it will be possible to again publish the magazine in its printed form. The relations existing between the Magazine Committee and this Division have been most cordial, and it is confidently expected that they will continue in this manner in the post war era. Before leaving the Magazine, J. Corbin 2 C must be congratulated upon the "Slouch Hats and Forage Caps" page.

During the year quite a number of overseas visitors have been in attendance at General Meetings or have been entertained by various Members. It was decided to have some form of souvenir printed for presentation to overseas Amateurs and this souvenir eventually took the form of a very attractive Certificate of Honorary Membership.

The possibility of reviving the Annual Dinner was suggested to Members, but although a large majority were in favor of the Dinner being held unfortunately very few Members could say definitely that they would be present. Under these circumstances it was decided to leave the matter in abeyance, but in place of the Annual Dinner December General Meeting took the form of a "Pound Night" and was voted an outstanding success. Thanks are due to Councillor Russ Miller for the able manner in which he organised the evening and it is confidently anticipated that all Christmas Meetings in the future will take this form.

Membership throughout the year has continued to increase. During 1942 a considerable influx of members took place due to the formation of the E.C.N. The majority of these newcomers have retained their interest resignations being very few - newcomers quite outweighing those who have dropped out.

This, gentlemen, covers the activities of the Division during 1943, and at the conclusion of each Annual Report during the war years, it has been customary to express the wish that the incoming Council would have the opportunity of moulding Post War Experimental Radio. This time more than ever before, it can be safely said that that day is very very near. What does the future hold? At any gathering of hams these days the subject of amazing advances and their application to the Post War Amateur are discussed. Here a word of warning should be sounded. It is true that many amazing developments have taken place in that extension of Radio known today as Electronics, some of which we have a slight knowledge of like R.D.F. Radio Navigation and Homing devices, but after all the Amateurs main interest is and has always been "Communications." In this field it is quite safe to say that no really "amazing" developments have taken place although aerials have been developed to a very large degree. Then again, when we are back on the air should we expect "the doors of military secrecy to be thrown wide open?" The answer is no. In the words of Clinton B. DeSoto "Let us look forward to our restoration to the air as an opportunity for tackling anew those problems which are still unsolved....We'll be better equipped than ever to do the job....the intense educations our members in the Services are receiving alone will be a significant new asset."

The future of Experimental Radio is particularly bright, and in view of the splendid part played by the Amateur on active Service and in Civilian Defence there does not appear to be any reason why the Amateur will disappear, but just what portion of the Radio Spectrum will be allotted to him is difficult to say, but one thing is certain, Commercial interests will endeavor to obtain as much of the useful part of the spectrum as possible. Therefore it will be necessary for the Experimentor to be organised. Remember, if the Institute had closed down as it did in the First World War there would have been no E.C.N. during this War!

What of the Institute in the New Era? It is quite safe to say that the number of Experimenters in Australia will be doubled if not tripled or even quadrupled. Up to June 1943 no less than 135 applicants for the A.O.C.P. had been successful in obtaining the "Ticket" With the cessation of hostilities, it is certain that there will be thousands of young chaps, yes A.W.A.S! W.A.A.F.'s and W.R.A.N too who will be anxious to keep up their new found interest in Radio per medium of the Amateur Bands. Therefore, the Division should commence to organise now. Firstly a cash reserve should be built up and with this object in view consideration must be given to raising the present particularly low rate of subscription. Another very important question must be the employment of a paid Secretary. If the Institute is to expand, and expand it must, it will be possible for any individual acting in an honorary capacity to do justice to the position. After all, the really large Amateur organisations viz., R.S.G.B. and A.R.R.L. have paid officers and the N.Z.A.R.T. had carried a proposal to this effect just prior to the outbreak of war.

R. A. Fridge VK2RA Retiring Pres.  
W. C. Ryan VK2TI " Sec.

TECHNICAL LIBRARY

A page of book reviews conducted for the benefit of  
Hams in the Services, and others similarly situated.

BASIC RADIO...J. Barton Hoag, US Coast Guard, 1942...379p, 27/- 9

The alternative title...The Essentials of Electron Tubes and their circuits...is more apt for this book, since there is much in the subject matter which is not within the scope of radio. This is the sort of book which can be read like a novel, furthermore it is one which a layman could follow without difficulty so clear are its explanations, yet we feel sure the majority of Radio Engineers and Hams could learn much from it.

Apart from the usual fundamentals, presented very attractively, Amplifiers, Oscillators, Detectors, Gas Filled Tubes, PE Cells and G. R. Tubes are discussed. The remainder of the book also deals with the usual subjects, but interspersed with these are some very interesting details of Feedback Amplifiers, some special Circuits and Microwaves. The chapter on Special Circuits includes amongst other things Frequency Dividers, Pulse Sharpening Circuits, and a Circuit for producing two figures on the screen of a Cathode Ray Tube at the same time. This chapter leaves one wondering whether there is anything that cannot be done with the aid of vacuum tubes. We can recommend this book as a valuable supplement to the more conventional volumes of the Ham Bookshelf.

RADIO RECEIVER CIRCUITS HANDBOOK...R.M. Squire, London. 2nd Ed.  
1943...104 Pages.....8/3d.

An interesting little book, not very advanced, but should be of use to those who want a general idea of standard circuits in modern receivers. Apparently written with that idea in mind, it goes just far enough, giving as it does all the more or less standard arrangements and values of components as found in conventional Broadcast Receivers.

FUNDAMENTALS OF RADIO...F.E. Terman...New York. 1st Ed. 1 938  
458 pages.....31/10d.

Just that and no more, but no less. As we have come to expect from Prof. Terman. It is well done, and worth having when you find you have forgotten that basic point and want to look it up. Unusual in a book of this kind is a chapter on Acoustics. Most authors seem to shy clear on this subject, which for certain purposes may be very important.

Being pre-this-war vintage this work lacks references to such recent developments as Micro-waves, but it is probable in any case that such subjects can be adequately covered only in separate manuals.

All books reviewed in this page may be obtained from McGills Newsagency, Elizabeth St., Melbourne.

... A. H. Clyne....Review Editor.

SHOLCH. E TS and FOHGE CAPS.

January finds all our correspondents in the columns, an' like the ham bands in the summer this column has been a bit neglected for the month.

The VK2 Div., had an airgraph from G2 L in which she gave 'Snow' Campbell's new address which appears, from her remarks, to be in Poland. Wonder if Snow finished his wireless course, the one, you may remember he was giving to several hundred prisoners without the aid of a single book. Has anybody any news of an other lads who are prisoners? VK2 KE was also in Italy but in a different prisoner camp than Snow. The luckiest prisoners seem to be those who made Switzerland.

VK4RF is on his way to VK5 to do another course. Fred was at the last VK2 Divisional meeting. It was the first time he has managed to be in VIS when our meeting was held though he has made many trips to S'ney during the time he has been at sea.

VK3 was also represented at the Divisional meeting in the person of Petty Officer Frank O'Dwyer VK3OF. Frank turned up at 2.30 a just at the time an' it was a pretty hectic business trying to make the meeting in these days of few trams, fewer buses ar' just about no taxis. Hill Frank was on one of our ships that shelled the beach before the landing on Cape Gloucester, an' his talk to the meeting was humorous and interesting. Incidentally the l's were also represented in this show by at least one W6 on a destroyer. Frank hopes to be in VK3 in Feb., for some "wellerne" (so he said) leave.

Wilf Harriss VK2alf was spending his leave at one of our holiday resorts in what I believe is a typical naval relaxation...horseriding. As Wilf grew up in the country he can "stay on" in case you are wondering. I believe he goes on to the Admirals' Staff soon...whatever that may mean. There is no news of 6IG (I think it was) who is also on the ship.

Roger Torrington, 2TJ seems to still stay aroun' the quiet spots after his hectic time up north as his latest R. is Essendon.

P/O Jack Lowes 2ABS gives the following description of his five weeks old jnr op...a boy, too, mark you.

"Frequency...500 to 1000 cycles

Power output (audio) approx 2.5 Watts

Note...T9x with slight commutator ripple

Polar Diagram... Essentially non-directional, but considerable end effect. Jack has yet to find out his opinion of the essential question..."Phone on forty at night." Hi!

Reg Morgan VK2-BM reports from No. 3 Mess HMS Cessnock. He is somewhere overseas, so your guess is as good as mine. If you in the navy meet up with the Cessnock a good welcome from 2A4M is assured. As he took part in the Sicily landing you will have to go a fair way to get that welcome. Being a silent member of the silent service that is all he tells about his "doings".

W/O Jim Perooz come to light with some news of his whereabouts. After much touring around he now gives his QRA as with the R.A.F at Lowood. J. Glad to hear from you Jim, after all this time, wondered just where you are. At the moment all the R.A.F seems to have just disappear into the blue, as far as VIS is concerned.

Ldg. Tel Sid Clarke seems to have reached his destination in N.G. and at the moment is short a Power Transformer and, more so, gramophone needles. The supply of these is so low they have to keep sharpening those they already have. So if anybody knows where there is a corner in needles shoot them on to me and I will send them on. (Secondhand ones will do O.K. see Sid). I think extracts from Sid's letters give a better idea of his goings than I can.... "So far I have only met one Ham. Strange as it may seem 'here IS one in the Navy with Commission! Mr. VK2G3.....Have been here a whole fortnight and have yet to see a woman...black or white. I think that is the main reason the pictures are so popular. Dotty Lawton has a very good following but I think George Rogers runs a close second. Some of the shows are quite old but we don't mind that. Rain is always expected too, so we are not disappointed if it does cover 'em and 'Prarie' capes or combination green' meets in capes keep us dry. G'd I went to late last week was execrable damn but since Dotty did not pack up and go home none of us went either...." Hal Rian tells me he has another letter so more news next month.

My asking about VK7s did produce some results. 30J and 2TI both send me a little dope. Dr. Holly writing to Herb 3J0 says he is doing this between patients...which sounds like 2-C's place...I usually type this, as now, between Midnight and 2:30 am...as its the only time there seems to be any time???? Takes me hours to type two pages with the one finger. The Doc mentions Peter Allen 7PA and Paul Jones 7PJ as being interested in their ECG Network over there, besides 7L Joy Battellor, 7KV Valentine and 7AK Carl Johnson. So that covers some of the "Sovens" we haven't heard of since the war began.

VK7LZ gives us another short list from Launceston and thereabouts. He reckons that of those who were around there prior to the war only himself and 7B<sub>4</sub> are left, the others either have shifted locality or being in some way connected with the War. He encloses the following list.

VK7KR	now with R.A.A.F. Darwin
VK7RK	" A.I.F. "Up North."
VK7HY	" A.I.F. "Up North."
VK7LG	" Merchant Navy
VK7DS	" A.I.F. 9th Div.
VK7GS	" Munitions in Hobart

Any further notes of these and other VK7's will be very welcome, ours.

Well, as usual last paragraph...usual "wings" WHM ARE THOSE NOTEJ????? Don't tell ME you are busy as Hams passing through tell me just WH-T you all ARE doing. Anyway, the busier you are the more notes I should get from you. Hi!

Remember- Jim Corbin 2-C. 78 Maloney St. Eastlakes (Mascot) Ph.MU1022

EMERGENCY COMMUNICATION NETWORK.

The 7th of January saw the Network back in action after the Xmas New Year break and all Operators expressed pleasure at being back on the air. One very pleasing aspect was the manner in which all stations functioned from the word go. The only installation that had any trouble was Control!

At the January meeting of the Division the method to be adopted for the allocation of the ECN Trophy was discussed and it was unanimously decided that the station gaining the highest number of points over the six months would be the winner of the Cup. The Committee were also given the power to make any Consolation awards they thought necessary at the conclusion of the Exercise.

The first Exercise for 1944 has just concluded and resulted in a win for VL2JJ. This station was the acme of consistency as shown by the points scored over the four weeks viz; - 48, 49, 49, 50. This is how they finished:-

VL2JJ ... 196	VL2JE ... 195	VL2JK ... 192
VL2JL ... 194	VL2JF ... 193	VL2JP ... 187
VL2JC ... 194		

Just nine points separated the highest and lowest scorers. Pretty going and it proves that every operator has to be on the qui-vive each week-end and cannot afford to make the slightest error.

Here are the aggregate scores for four months:-

VL2JC	178	195	145	194	712	Total
VL2JJ	188	185	140	196	709	
VL2JP	180	187	140	187	694	
VL2JK	172	183	146	192	693	
VL2JL	149	195	147	194	685	
VL2JF	165	182	121	193	661	
VL2JE	82	153	88	193	516	
VL2JG	184	186	136	-	506	
VL2JN	48	0	140	0	188	
VL2JM	-	-	143	-	143	

Look out for VL2JJ next month .... VL2JC !

In recent weeks NDS has reviewed the activities of the Network and it has been decided to close down VL2JG, VL2JM and VL2JN, as no place could be found for these stations in the re-organisation of that Department's activities. The Operators at these locations have been transferred to other stations and has enabled certain stations to build up their staff of operators. Thus quite a few new voices should be heard soon, particularly from Control.

VL2JC .. It is understood that 2DI is making a study of transport regulations as applied to bus tickets and that when any petrol coupons are about Eric is never backward in coming forward. Who wouldn't be?

VL2JE .. Stayed on frequency all the time and as a result put their best score to date. I think you chaps must be imbued with the

Robert Bruce spirit. Try, try, try again. Well done chaps. By the way Jack, when DO I get that gumn?

VL2JF .. Well, well, well, after all these years 2HP has a baby daughter in the family, but it took son Geoff to do it. I suppose you and Alec will have a lot to talk about now. Was that the reason for the best score to date.

VL2JJ .. It is understood that their theme song from now on will be "Concord, here I come." Nothing's a trouble to these boys and they deserve to do well.

VL2JK .. Ken, Stan and Charlie doing an excellent job and are three good Hams in the making. Quality would appear to be costing them a few points each week-end. Better get Ern on the Job when he comes back, Ken.

VL2JL .. Well it won't be long now. George's daughter Marie is in the WAMFS with the rating of Radio Mechanic and it is understood that she is going to give Dad a few pointers. Poor old George will just have to listen.

VL2JP .. Where was Ron when the light went out? 2JP's signal strength has fallen off over recent weeks and thus cost them quite a few points. A new mike battery should make some difference.

....000....

#### VICTORIAN DIVISION

Once again we remind all Victorian Hams, members and non-members alike, the meeting at which post war reconstruction of Ham radio will be freely discussed, will be held at the Rooms 191 Queen St., Melbourne on Tuesday 7th March. This Division extends an open invitation to anyone interested in Ham Radio to attend this meeting. Members are asked to bring along any Hams they know who are non-members as this question of Post war Ham Radio is going to be a big thing, and it will be necessary for all Hams to get together so that they may be able to produce a watertight case to justify their future existence. Hams on service and those in the country not able to attend this meeting can do their little bit by writing to the Divisional Secretary and telling him of their ideas...You know every little helps.

We were very pleased to see VK2ACS at a recent meeting of this Division, and the tale of his experiences proved of much interest to the gathering.

Captain J. Winton 3XR, and George Thompson 3TH were also visitors at a recent meeting.

Membership of this Division continues to increase, and members could help considerably by introducing new members. Members and non-members could also help Council very much by keeping Council posted of the rank etc. of any Ham they know to be in the Services. This applies particularly to those on service. These records are desired for statistical purposes, as it is the intention of council to compile an official record which can only be done with the help and co-operation of members.

Council still has a number of Admiralty Handbooks for Sale, they are the latest two volume edition. The price is 18/- per set plus 1/6 postage. Inquiries may be addressed to the Secretary.

And now we have a story to tell .. A Policeman in Queen Street was amazed recently to see two people doing what appeared to be an Indian War Dance in the middle of the street. However he did not take any action which relieved 3JO and SWQ from appearing in court. The explanation is simple .. some members were returning home from the meeting and were held up at Collins St., by the traffic lights for some considerable time. SWQ and 3JO jumped out of the car and dashed back to the pad in the centre of the road, and jumped up and down on it in an endeavour to change the lights.... When the lights did change was there a wild scamper to get back into the car before they changed to red again.

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(Continued from page 4)

which are situated in about 30 degrees North and south latitude. As the cycle progresses these belts draw together and towards the end of the cycle, situated in about 8 degrees North and South latitude. But sometime before the sunspots finally cease to appear in these regions, a fresh phase of activity gives rise to sunspots which appear in the high latitudes again, and then a new cycle commences. At this time then there are four belts in which sunspots occur, two in the high and two in the low latitudes on either side of the solar equator. The appearance of a sunspot in a high latitude is, therefore, a sign that the current cycle is coming to an end.

It is not a necessary implication, however, that as soon as the minimum is passed, there will be a big increase in the working frequencies for short-wave transmission. Although this apparently does occur sometimes, an examination of former sunspot cycles shows that more often than not, there is during the first year after the minimum period, very little increase in the solar activity. It is during the second year of the new cycle that the big increases most often occur.

There is one other interesting change in sunspot phenomena which takes place at the end of a cycle. The sunspots most often appear in pairs, the one which lies in the forward position with regard to the direction of the sun's rotation being known as the 'leader' spot and the other as the 'follower.' These have opposite magnetic polarity, and during any one cycle, one is of North magnetic polarity and the other of South. At the end of a cycle this polarity is reversed. In the case of the group recently observed the leader spot was so little in advance of the follower that it was hard to say whether it had a different polarity to the leader spots of the present cycle or not ..... "Wireless World."

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# THE WIRELESS INSTITUTE OF AUSTRALIA



Divisions of the Wireless Institute of Australia exist in every State of the Commonwealth. The activities of these Divisions are co-ordinated by Federal Headquarters Division, the location of which is determined from time to time by ballot.

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